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March 17, 1999

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BY HAND DELIVERY

Ms. Magalie R. Salas
Secretary
Federal Communications Commission
The Portals
445 Twelfth Street, S.W.
Washington, D.C. 20554

RECEIVED
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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

**Re: Notice of Ex Parte Communication Regarding Interconnection
and Resale Obligations Pertaining to Commercial Mobile
Radio Services, CC Docket No. 94-54**

Dear Ms. Salas:

Yesterday, on behalf of the Telecommunications Resellers Association ("TRA"), the undersigned of Hogan and Hartson L.L.P. and David Gusky, Executive Vice President, TRA, met with John Cimko and Nancy Boocker of the Wireless Telecommunications Bureau Policy Division regarding the referenced proceedings.

In the meeting, TRA discussed its position regarding the importance of unrestricted wireless resale to a competitive wireless and full service market. TRA also discussed the importance of Commission enforcement of the current resale obligation and the need to eliminate any sunset of the resale requirement.

The attached handout was distributed and discussed at the meeting. The handout explains the reasons why the Commission should retain its requirement that carriers permit resale of bundled packages of wireless service and equipment. TRA also discussed the points made in the November 13, 1998, letter to Chairman William Kennard from David Gusky of TRA filed in the referenced docket.

TRA also distributed and discussed the enclosed reply comments of the Personal Communications Industry Association (PCIA) in WT Docket No. 98-205, et al., filed Feb. 10, 1999, which we hereby file for inclusion in the record of the referenced proceeding (CC Docket No. 94-54). In its reply comments, PCIA opposed the lifting of the commercial mobile radio services spectrum cap. PCIA cited data showing that the PCS share of the wireless market is still relatively low. This data shows that the FCC's decision to sunset the wireless resale requirement, which was based on predictions of the effect of

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Magalie R. Salas

March 17, 1999

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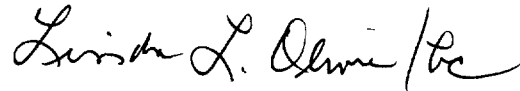
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the introduction of PCS on the competitiveness of the wireless market, was not well-founded. For this reason and the reasons given in the reconsideration petition of the National Wireless Resellers Association in the referenced proceeding, TRA urges the Commission to lift the sunset of the resale rule.

I have hereby submitted two copies of this notice for each of the referenced proceedings to the Secretary, as required by the Commission's rules. Please return a date-stamped copy of the enclosed (copy provided).

Please contact the undersigned if you have any questions.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Linda L. Oliver /lc".

Linda L. Oliver
Counsel for Telecommunications
Resellers Association

Enclosures

cc: John Cimko
Nancy Boocker

Telecommunications Resellers Association

**March, 1999
CC Docket No. 94-54**

**Why Resale of Bundled Offerings of
CPE and Wireless Service
Must Remain Unrestricted**

The Commission correctly held in the CMRS Resale Order that carriers should not be allowed to circumvent the resale requirement by denying resellers the ability to resell a package of wireless service and equipment. 1/

Under the resale rule, 47 C.F.R. § 20.12(b), resellers are entitled to “unrestricted resale” of any CMRS service, including services that are discounted through bundled offerings.

Denying reseller customers the ability to purchase a bundled offering constitutes the denial of a reasonable request for service in violation of Section 201(b) and constitutes discrimination against reseller customers in violation of Section 202(a). 47 U.S.C. §§ 201(b), 202(a).

1/ Interconnection and Resale Obligations Pertaining to Commercial Mobile Radio Services, CC Docket No. 94-54, FCC 96-263, released July 12, 1996, at ¶ 31, 11 FCC Rcd 18455 (1996).

Communications services increasingly are being sold in bundle-priced packages with other products, some of which may not themselves be subject to Title II. 2/

Standard practice in the wireless industry is to sell wireless phones at deeply discounted rates when the phones are purchased with wireless service. 3/

- This practice, while permitted under FCC rules for wireless services, enables the carrier effectively to discount the *service* when it is sold in a bundle with equipment.
- The bundled price *disguises* the discounting of the service price.

2/ See, e.g., "Bundling Still a Mixed Bag," RCR, Jan. 18, 1999. Bundled pricing is commonly defined as offering of two or more products at a packaged rate that is lower than the price that would be paid if the components were purchased separately. See, e.g., Policy and Rules Concerning the Interstate, Interexchange Marketplace, CC Docket Nos. 96-61, 98-163, FCC 98-258, released October 9, 1998, at ¶ 1.

3/ Except in the case of wireless services, it is still unlawful to bundle telecommunications services with equipment. The Commission is considering whether to eliminate the general prohibition on bundling of common carrier services with CPE and enhanced services. See id.

This discounted wireless service should be available for resale, through *resale of the bundle*.

Or, if the carrier prefers, the discounted service can be provided by offering resellers service (without CPE) *at the effective discount* reflected in the bundled offering.

The fact that CPE standing alone is not a Title II offering, or that CPE is competitive, is irrelevant to whether the bundle should be available to resellers.

- In the CMRS Resale Order, the Commission did *not* hold that the non-common carrier products themselves must be available for resale.
- Resellers are like any other customer, and cannot lawfully be denied the ability to purchase service, whether it is offered on a stand-alone basis or bundled with CPE.
- Carriers cannot use bundling as an excuse to discriminate against resellers.

The fact that a reseller may be able to purchase the CPE from another source also is irrelevant to the requirement to permit resale of the bundle.

- The problem with bundling is not the lack of availability of CPE.
- Rather, the issue is that wireless service is being effectively discounted through the bundle, and that service discount is not available to reseller customers.

The Commission did not prohibit bundling of wireless service with CPE; it only required carriers to refrain from denying resellers the ability to purchase bundled as well as stand-alone service offerings.

The Commission simply was recognizing that when a Title II common carrier service is bundled with a non-Title II offering, carriers can employ the bundled pricing as a means of denying to resellers the most favorable retail rate.

The implications of eliminating the requirement that bundles be made available for resale would be profound.

Full service packages are likely to become the rule in the marketplace.

- By definition, the components of the package will be more expensive, standing alone, than they will be when purchased as a bundle.
- Thus, the lowest effective rates for service will be those available in bundled offerings.
- If those bundles are not available for resale, resellers will be left with the ability only to resell the highest priced, least discounted offerings.

If resale becomes nonviable as a practical matter, then only those service providers that own networks will be in a position to compete in a full service world.

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)	
)	
1998 Biennial Regulatory Review)	
Spectrum Aggregation Limits)	WT Docket No. 98-205
for Wireless Telecommunications Carriers)	
)	
Cellular Telecommunications Industry)	
Association's Petition for)	
Forbearance From the 45 MHz)	
CMRS Spectrum Cap)	
)	
Amendment of Parts 20 and 24 of)	WT Docket No. 96-59
the Commission's Rules -- Broadband PCS)	
Competitive Bidding and the Commercial)	
Mobile Radio Service Spectrum Cap)	
)	
Implementation of Sections 3(n) and)	GN Docket No. 93-252
332 of the Communications Act)	
)	
Regulatory Treatment of Mobile Services)	

REPLY COMMENTS
OF
THE PERSONAL COMMUNICATIONS INDUSTRY ASSOCIATION

By: Mary McDermott, Senior Vice President
Chief of Staff, Government Relations

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Date: February 10, 1999

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SUMMARY

The Personal Communications Industry Association, Inc. ("PCIA"), hereby respectfully submits its Reply Comments in the above-captioned proceeding.

It is clear from a review of the initial Comments that it is too early to alter the existing spectrum cap. The two-way voice market continues to be dominated by cellular carriers, and no commenting party offered any credible evidence to demonstrate otherwise. In its Reply Comments, PCIA supplies additional statistical information demonstrating that PCS operators have a zero market share (measured by subscribers) in 49% of the top 200 markets, and in no top 200 market does the combine total of all operating PCS licensees yet exceed 25% of mobile two-way voice subscribers. Thus, the cellular concentration in every market exceeds the level at which even CTIA admits demonstrates "market power."

Any alteration of the spectrum cap at this time would dramatically alter the business plans of small PCS operators which are just now building out their systems. More importantly, any change at this time would dramatically impact the PCS auction which the Commission is about to conduct. The spectrum cap has created new competitors, new services and rapid digitization of existing networks. Therefore, PCIA can only conclude that the Commission must not amend, delete or forebear from enforcement of the spectrum cap at this time.

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FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

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Implementation of Sections 3(n) and)	GN Docket No. 93-252
332 of the Communications Act)	
)	
Regulatory Treatment of Mobile Services)	
To: The Commission		

**REPLY COMMENTS
OF
THE PERSONAL COMMUNICATIONS INDUSTRY ASSOCIATION**

The Personal Communications Industry Association, Inc. ("PCIA"), through counsel and pursuant to Section 1.415 of the Commission's Rules, hereby respectfully submits its Reply Comments in the above-captioned proceeding.

The majority of commentators agree with PCIA and urge the Commission to retain its 45 MHz broadband CMRS spectrum cap.¹ They believe that the cap on local spectrum holdings is the critical catalyst to the creation and expansion of multiple, independent wireless voice networks. PCIA agrees wholeheartedly with the conclusions of Sprint PCS as to the positive impact of the cap.

The spectrum cap has played and continues to play a critical role in the development, and maintenance, of competition in the mobile telephone market. Because the cap guarantees that there will be at least four facilities-based CMRS licensees in every market, the Commission can adopt "hands off" deregulatory policies toward the CMRS market. This deregulatory policy in turn provides the public with the additional benefits of unfettered competition in the CMRS market, lower prices, innovative services and features, and diverse pricing plans designed to meet the diverse needs of consumers.²

The competitive wireless voice market created by the Commission when it authorized PCS is still in its early stages. The comments confirm that it is entirely too early to remove or modify the cap. The Commission should revisit the cap in two years in the next Biennial Review process with a focus on the structure of the market in terms of subscribers and independent networks.

The concentrated nature of the mobile two-way voice market in terms of subscribers is readily apparent. To date, PCS operators have a zero market share (measured by subscribers) in 49% of the top 200 markets; PCS operators have a 15% or less market share in 82% of the top 200 markets and a 20% or less market share in 96% of the top 200 markets. In no top 200 market does the combined total of all operating PCS licensees yet exceed 25% of mobile two-way voice

¹See, for example, the Comments of America One Communications, Inc.; MCI Worldcom, Inc.; Southern Communications Services, Inc.; DiGiPH, Inc.; Northcoast Communications, LLC; Sprint PCS; Telecommunications Resellers Association; Telephone And Data Systems, Inc.

²Sprint PCS Comments at 4.

subscribers.³ Clearly, cellular operators still dominate. Cellular operators' subscribership levels meet or exceed 35% in each of the top 200 markets reviewed by PCIA; 35% is a level that CTIA has warned could permit a firm to exercise "market power".⁴ To lift the cap now would ensure that these concentration levels would only increase, leaving consumers with far fewer choices for independent mobile voice providers.

I. IT IS SIMPLY TOO EARLY TO REMOVE THE CAP

A. The Spectrum Cap Promotes Innovation, Spectrum Conservation And Lower Costs to Consumers

The comments supporting immediate elimination of the cap are long on claims, but short on specifics.⁵ Importantly, there is no concrete evidence demonstrating that any wireless competitor is having any difficulty providing any service in any market due to the cap. In fact, Sprint PCS, the nations largest PCS operator, sees no need to eliminate the cap to promote new service offerings. Nor has any carrier used anywhere near 45 MHz in a market to serve its customers. Sprint PCS goes on to explain that carriers who might be approaching the cap can use second and third generation technology that vastly increases the capacity of their networks without the need to load CMRS

³Calculations based on market data provided to PCIA by Telecompetition, Inc. See Attachment A and Section II of this pleading.

⁴CTIA Comments at 6; See also, CTIA Petition at 12. CTIA defines market power as the unilateral power of a firm to raise prices of a good or service.

⁵See, for example, AT&T's allegation that the attribution rules "...create a disincentive to invest in new wireless services." AT&T Comments at 10-12. AT&T's sole example is where it could not invest more heavily in three wireless "affiliates" because of the attribution rules. AT&T alleges that this prevents the entities from acquiring capital to build-out the systems. However, elimination of the cap would not provide more capital to these entities for a build-out, it would only result in a sale of the companies before they ever built their respective systems. AT&T's argument is counter to GTE Service Corp.'s ("GTE") argument that there is sufficient access to capital for smaller systems. GTE Comments at 16.

spectrum or purchase competing wireless networks.⁶ Clearly, permitting large amounts of spectrum (and the accompanying networks) to be held by any one company may permit that company to achieve certain internal efficiencies and increase profits but, it is the public interest which is being considered in the Commission's review of the spectrum cap, not the interests of individual competitors.⁷

In its Comments, AT&T Wireless Services, Inc. ("AT&T") correctly notes that the Commission is searching for new ways to facilitate competition in the CMRS marketplace. AT&T argues, however, that eliminating the spectrum cap and attribution rules would help realize these "ambitious" goals.⁸ However, elimination of the cap clearly does not facilitate competition, it only facilitates consolidation. It is the Commission's task in this proceeding to determine whether there are currently sufficient, established, embedded competitors so that elimination of the cap will not impair a competitive marketplace. The facts clearly demonstrate that the necessary level of embedded competition has not yet been achieved.⁹

⁶Sprint PCS Comments at 5, 14-15.

⁷*BellSouth Corporation v. FCC*, No. 97-1630 (1st Cir.) (Jan. 8, 1999).

⁸AT&T Comments at n.4.; BellSouth Comments at para. 48. See also, GTE Comments at 22-23; Western Wireless Corporation ("Western") at ii.

⁹See, Section II, *infra*. Attached to AT&T's Comments is an analysis performed by Economists Incorporation ("EI"), utilizing for statistical purposes a "market" consisting of 205 MHz of spectrum. However, there are three fundamental flaws in this analysis. First, as stated in PCIA's original comments, this type of analysis assumes that all 205 MHz has been constructed, which is far from the case. Second, EI includes narrowband spectrum in its analysis, which is not part of the spectrum cap. Third, EI includes in the relevant market all SMR spectrum. Inclusion of more than the Upper 200 SMR channels in a spectrum cap analysis is flawed because much of the "lower" spectrum is presently occupied by non-CMRS and non-SMR systems, and will become even more saturated with such users after completion of the Upper 200 SMR channel relocation.

The cap has not demonstrably hindered development of new technology or services in any way. Bell Atlantic Mobile, Inc. ("BAM"), BellSouth Corporation and others argue that new spectrum must be made available to meet the demand for wireless services.¹⁰ PCIA agrees, and as related in PCIA's initial Comments, PCIA believes that the spectrum cap should not limit the ability of any carrier to participate in these new and exciting markets. The cap should remain for now only with regard to existing broadband, two-way spectrum (consisting of PCS, cellular and SMR spectrum). The cap does not now apply in any other CMRS spectrum bands.

As additional spectrum is made available for additional wireless services and technologies, carriers will have access to this spectrum. Even for broadband two-way spectrum, the cap should be increased proportionately to reflect any new spectrum allocated for these purposes. If the Commission believes that these advanced wireless services are not getting out to the public, it should conduct a follow-on inquiry to its recent Section 706 Report to Congress to consider a new spectrum allocation strategy or removal of other barriers to the dissemination of advanced wireless services.

In fact, the efficiencies in spectrum use and declining prices seen to date are a direct result of the cap. AT&T claims those efficiencies arise because wireless competitors have a "direct economic incentive to maximize output," because "the cost of adding additional subscribers is nearly negligible."¹¹ However, it is clear that the marketplace competition created by the spectrum cap

¹⁰BAM Comments at 22-27. BAM's comparison of the broadband two-way wireless spectrum cap to the lack of similar controls for LMDS is inapposite. The two services do not compete for the same customers, and the services have a different purpose and genesis. BAM's comparison failed to note the spectrum cap (albeit expressed in a different form).

¹¹AT&T Comments at n. 33.

accelerated the digitization of existing services.¹² and without this competition there would have been no direct economic incentive to maximize output. The success of the broadband wireless two-way market, which has only just begun, is the direct result of the spectrum cap, and that success should not now be sacrificed before embedded competition becomes a reality in this market.

The Commission should take particular note of Sprint PCS's argument that deployment of second generation equipment makes the spectrum cap less intrusive.¹³ The spectrum cap has in fact created additional competitors in a market, which has forced existing competitors to make more efficient with their own spectrum assignments. Without this marketplace pressure, there will no longer be the "direct economic incentive" to utilize the assigned spectrum in the most efficient manner.

Several parties argue that aggregation of spectrum in a single market of more than 45 MHz helps realize economies of scale and scope.¹⁴ However, while there may be economies for the licensee, this only translates into economies for the public if the licensee reduces the price for service. Prices will be driven to competitive levels only if there are embedded competitors in the market, and elimination of the cap at this time will injure competitors' start-up efforts. Where the spectrum cap has been truly shown to be an obstacle in specific situations, the Commission has demonstrated its ability to consider waivers.¹⁵

¹²The Commission reports that 71% of the United States population is now covered by digital cellular service. *Third Annual CMRS Competition Report* at 30.

¹³Sprint Comments at 12-13.

¹⁴See, for example, Comments of Western at 8-9.

¹⁵See, Comments of Triton Cellular Partners, L.P. ("Triton").

B. The Commission is Still in the Midst of Creating New PCS Competitors

Elimination of the cap as the Commission is about to embark on the auction of hundreds of C, D, E and F Block Broadband PCS licenses is particularly inappropriate. The Commission only recently announced auctions for 356 C, D, E and F Block Broadband PCS licenses.¹⁶ The auction is scheduled for March 23, 1999. This auction is primarily aimed at smaller companies who will have an opportunity to obtain spectrum under designated entity rules.¹⁷ These PCS entrepreneurs should not be forced to participate in an auction with so much uncertainty as to the fundamental structure of market. The Commission cannot, in all fairness, leave subject to doubt the fundamental issue of market structure while these entrepreneurs are attempting to assess their cost and profitability scenarios.

Apart from uncertainty as to the cap, C Block designated entities face extraordinary challenges in implementing a PCS business plan. Lifting the cap would radically alter the competitive landscape for these entrepreneurs. Yet, designated entities in the up-coming March PCS auctions - in fact, almost all current designated entity license holders - would be left with no "exit strategy" in the face of these changed circumstances, other than to sell to another designated entity.

If the Commission intends to change its designated market structure in such a dramatic way, it must do so well in advance for that spectrum in order for potential bidders to accurately assess the value of auctioned licenses. It would be fundamentally unfair to bidders risking significant sums in

¹⁶Public Notice, DA-98-204 (rel. December 23, 1998, corrected January 21, 1999).

¹⁷Several small companies support continuation of the spectrum cap, including America One Communications, Inc., DiGiPH, Inc. and Northcoast Communications, LLC

reliance on the market structure and competitive outlook engendered by the current spectrum cap to change the rules so dramatically now.¹⁸

II. THE MARKET FOR MOBILE TWO WAY VOICE SERVICES IS EXTRAORDINARILY CONCENTRATED

As PCIA and others explained in their initial comments, the spectrum cap is still necessary to ensure that emerging PCS competitors have the ability to survive in a market dominated by incumbent cellular operators. Without the cap in this early phase of market development, new PCS companies would have little or no chance to create and sustain independent networks and services that provides consumers with the mobile voice choices favored by the Commission. As Attachment A starkly demonstrates, PCS is still in the early stages of development. In almost 50% of the top 200 MSAs, consumers yet have no alternatives to cellular service. In 53% of these markets, all PCS operators combined have 10% or less of customer share. PCS operators serve as much as 15% of two-way voice subscribers in 82% of the markets and 20% or less of subscribers in 96% of the top markets. PCS providers' combined subscribership share exceeds 20% in only 3% of the top 200 MSAs. In no MSA does the combined PCS operator subscribership share exceed 2% of subscribers. On average, PCS holds a 7.6 percent market share in the top 200 MSAs.

Cellular operators' dominant position is borne out by estimates from other sources. Based upon recent RCR subscribership estimates, for example, cellular system operators still control the dominant share of the two-way voice market in the very top markets.¹⁹ In each of these top markets,

¹⁸The pendency of this large auction also shows the nascent status of PCS roll-out. Sixteen percent (16%) of PCS licenses will be auctioned in March and only then will licensees begin network build-out and begin commercial operations.

¹⁹See Attachment B.

all PCS operators combined have an average subscribership share of only 12 percent. The United States Commerce Department also recognizes that continued predominance of cellular operators, despite the rapid growth of PCS networks.²⁰

A. This Market Is Concentrated By Any Measure

The Commission's spectrum cap is based on the Herfindahl-Hirschman Index ("HHI"), used by the U.S. Department of Justice to assess the consequences of mergers among competing firms. In 1996 the Commission used an HHI index based on spectrum capacity, rather than market share, to analyze the market and establish a cap at a time when PCS operators had no market share. Now that PCS licenses have been granted and many systems are in operation, it is possible to observe Herfindahl index numbers based on actual market share.

At the request of PCIA, Telecompetition Inc. of San Ramon, California provided subscribership estimates for the top 200 markets.²¹ PCIA asked HAI Consulting to conduct selected HHI analysis based on the Telecompetition subscriber data in Attachment A chosen from the Top 200 MSA/CMSAs. HAI selected two markets at random from each quartile and computed market share Herfindahl indices for each.²² The results shown in Table 1 are not surprising. In no case is there an HHI less than 3,000, well above the U.S. Department of Justice threshold for a highly

²⁰U.S. Industry & Trade Outlook '99, U.S. Department of Commerce/International Trade Administration, at 30-12, 30-13.

²¹Telecompetition relies on a variety of public data sources, including financial analyst and Commission reports.

²²Telecompetition provides data for cellular, PCS and SMR/ESMR but does not provide shares for each carrier in each category. HAI assumed that within each category, individual carriers are the same size. Telecompetition uses FCC data to identify markets where PCS carriers have entered. In some cases the FCC data may not reflect the presence of relatively new entrants. These entrants will likely have achieved only a small number of customers so the conclusions reached here would not change.

concentrated market.²³ Moreover, in every case, the leading firms have a share that exceeds 35 percent, the level which according to CTIA is “. . . recognized to be necessary for undue market power.”²⁴

TABLE 1

CSA/MSA Rank	CSA/MSA Name	HHI Score
7	Detroit-Ann Arbor-Flint, MI	3172
38	Salt Lake City-Ogden, UT	3282
61	Harrisburg-Lebanon-Carlisle, PA	4433
93	York, PA	4428
107	Corpus Christi, TX	4437
129	Duluth-Superior, MN-WI	3257
152	Medford-Ashland, OR	4432
191	Altoona, PA	4426

These data show that HHI's based on current market shares²⁵ are well above a theoretical floor of 1343, suggesting that the competitive benefits from PCS build-outs are far from fully realized.²⁶ As additional competitive capacity comes on line, competition in the wireless business

²³The HHI's shown in Table 1 are consistent with those calculated by John B. Hayes and submitted as an attachment to the Comments of Sprint PCS. Although derived from different data sources (thus the values are not identical), the conclusions are inescapably the same - the markets continue to be highly concentrated.

²⁴CTIA Comments at 6.

²⁵HAI has examined two markets where data was available to determine what the impact is on HHI's due to staggered entry by PCS operators. The number of subscribers ascribed to PCS by Telecompetition has been pro-rated among PCS carriers based on the number of months they have been in service, the results for Detroit and Denver are:

Market	PCS Carriers	HHI <u>without</u> pro-ration	HHI <u>with</u> pro-ration
Detroit	2	3172	3173
Denver	3	3180	3181

The effect of pro-ration appears to be minimal at this time.

²⁶HHI of 1343 is based on theoretical capacity of cellular and PCS spectrum in a given market where each cellular carrier has 25 MHz, three PCS carriers have 30 MHz each, three other PCS carriers have 10 MHz each, and an SMR carrier with 10 MHz. Each carrier is

will increase. On the other hand, mergers or acquisitions involving large firms in local markets could reverse the process by which competition is emerging in wireless markets. Given the current market structure and the lack of demonstrable efficiencies, acquisitions that exceed the existing cap are highly likely to fail antitrust and public interest review.

The proponents of eliminating the cap argue that the cap is unnecessary given the availability of antitrust and public interest review by the Commission. However, the cap serves a very useful purpose. First, it provides market participants and potential bidders with useful information to the extent that the Commission is unwilling to allow individual markets to be dominated by a single firm or a few very large ones. Second, the cap preserves scarce Commission enforcement resources by eliminating unnecessary merger reviews that would most certainly fail.²⁷ This also conserves the resources of third parties that would be forced to participate in Commission proceedings in order to protect their interest in a competitive market. This is particularly true for PCS entrepreneurs and designated entities, who would have to divert scarce capital away from network development to

presumed independent of the others and spectral capacity equals subscriber capacity. We do not believe it would be appropriate to add other spectrum capacity to this computation. As the Commission has recognized, paging and other spectrum available for other, generally private carrier, mobile services would not allow an adequate substitute for existing cellular, PCS or ESMR spectrum. See *Report and Order*, WT Docket No. 96-59, 11 FCC Rcd 7824 (1996) ("*Spectrum Cap Order*"). This scenario is consistent with the "Atomized Market" presented by the Commission in the *Spectrum Cap Order*. Appendix A of the *Spectrum Cap Order* presented a number of spectrum licensing scenarios and calculated the HHI index for each. The "Atomized Market" provided the lowest index. It is interesting to note that the HHIs in Table 1 are all in the range of those calculated in Appendix A for scenarios where there is no spectrum cap.

²⁷The highly probability of failure would not necessarily deter firms from trying to push the envelope. This is particularly true given that elimination of the cap might be seen by some as weakened resolve on the part of the Commission to enforce the pro-competitive goals underlying the cap.

oppose mergers on antitrust grounds. The spectrum cap is a cost-effective and pro-competitive substitute for case-by-case Commission review during this period of PCS market development.

At some point, after systems are built and robust wireless competition is well established, it may be reasonable to drop the cap and judge industry consolidation on a case-by-case basis. In the meantime, the cap appears to be a low-enforcement cost rule that is working.²⁸

B. The Spectrum Cap is Working

PCIA also asked HAI, Inc. to review the economic analysis of CTIA and other commentors in this proceeding. HAI's findings are reflected in the following analysis of competition:

CTIA's claim that the CMRS market is sufficiently competitive relies principally on a 1993 study by Besen and Burnett, which purports to show that the mobile telephone market was competitive even before PCS carriers entered.²⁹ While PCIA believes that mobile telephone competition is growing, PCIA does not agree that the market was competitive prior to PCS entry. Returning the two-way mobile wireless market to only two competitors would return the HHI to its previous high level, "... defeating a major purpose of the Commission in creating broadband PCS -- to bring more competition into the concentrated mobile telephony market."³⁰

An analysis conducted by Hatfield Associates, Inc. in 1993 addressed competition in the cellular duopoly in great detail.³¹ The reality is that prior to licensing PCS carriers, the cellular

²⁸Where small market overlaps trigger the cap, the Commission could consider exceptions on a case by case basis.

²⁹See, Stanley M. Besen and William B. Burnett, "An Antitrust Analysis of the Market for Mobile Telecommunications Services, December 8, 1993 ("Besen and Burnett").

³⁰*Spectrum Cap Order* at para. 98.

³¹See, Daniel Kelley, "An Efficient Market Structure for Personal Communications Services," September 13, 1993, pp. 6-19. This paper was filed by MCI with an *ex parte* presentation in General Docket 90-314.

market was a capacity-constrained duopoly. Due to a series of mergers among carriers, licenses were concentrated in a small group of firms, implying that firms faced each other in multiple markets. The result was a lack of price competition and high cellular prices and profits.

Although the Hatfield Associates analysis predated the Besen and Burnett paper cited by CTIA, it responded to many of the wireless competition arguments made by Besen in conjunction with other Charles River Associates analysis in earlier papers.³² Evidence cited by those who believed the market was competitive was faulty. For example, advocates of the competition hypothesis claimed that unstable market shares showed that the market was competitive. In fact, these unstable shares were the result of the head start given to the B license carriers.³³ However, the best evidence that the cellular duopoly was not performing well is the increase in price competition that has occurred since PCS entry, at least in major markets.³⁴

HAI concludes that PCS entry has stimulated a great deal of competition. As a consequence, wireless markets are performing much better than they were before the introduction of PCS. This competition is the result of actual entry by independent firms. The process of introducing

³²See, for example, Stanley M. Besen, Robert J. Lerner and Jane Murdoch, An Economic analysis of Entry by Cellular Operators Into Personal Communications Services, November 1992.

³³Both the GSA and the Department of Justice reached the contemporaneous conclusion that cellular markets were not competitive. See, Report to Henry Reid, U.S. Senate, Concerns About Competition in the Cellular Telephone Service Industry, 1992. See also, "GAO Witness Tells Senate Panel That Cellular Duopoly Inhibits Competition," Telecommunications Reports, January 18, 1993, p. 17. The Department of Justice cited these findings in its comments supporting the development of PCS. See, U.S. Department of Justice, Reply Comments, General Docket No. 90-314, December 9, 1992.

³⁴In the Third Annual CMRS Competition Report the Commission referenced a number of industry reports that showed declining service prices at least in part as a result of competition. Third Annual CMRS Competition Report, at 19-20.

competition to wireless markets has not run its course. Many PCS systems, particularly in smaller markets, have not yet been built.³⁵ Allowing control over spectrum to become more concentrated at this early stage in the development of the market would likely reduce competition.

HAI disagrees with the analysis by the Robert W. Crandall and Robert H. Gertner to the effect that the addition of a single PCS carrier is sufficient to produce fully competitive PCS markets.³⁶ The market is currently experiencing the rapid growth of new competitors along with the availability of capacity available for new entrants. If the market is allowed to stabilize at a three firm oligopoly equilibrium through acquisitions of new entrants by the incumbents, the recent price competition that Crandall and Gertner document could be reduced or eliminated.³⁷

CTIA points out that:

Notably, many CMRS carriers have expended significant resources in recent months to build out their networks. In these situations, such firms may have excess capacity that permits them to increase their output in the near term while incurring relatively few additional costs. Under such circumstances, this is 'precisely the situation in which economic analysis indicates that vigorous price competition is most likely, and that collusion is unlikely.'³⁸

CTIA's argument is in fact an argument for retaining the spectrum cap. Economic analysis indicates that in a concentrated market with significant barriers to entry, acquisition by an established firm of

³⁵Indeed, there are 356 returned and reclaimed PCS licenses to be auctioned in FCC Auction #22, scheduled to begin March 23, 1999.

³⁶See, Declaration of Robert W. Crandall and Robert H. Gertner, filed with the Comments of Bell Atlantic Mobile, Inc.

³⁷PCIA also notes that in 1994 the RBOCs presented statistical and econometric analysis purporting to show that cellular markets were performing competitively prior to the entry of PCS operators. See, Affidavit of Richard S. Higgins and James C. Miller III and Affidavit of Jerry A. Hausman in U.S. v. Western Electric, Civ. Action No. 82-0192-HHG, June 20, 1994 (Bell Companies' Motions for Generic Wireless Waivers). There is no reason to believe that the current RBOC sponsored econometric studies are any more accurate than the earlier ones.

³⁸CTIA Comments at 8 (citing Besen and Burnett).

a new entrant with excess capacity will likely dampen competitive forces. In other words, CTIA can not rely on the presence in the market of a few firms with excess capacity as an excuse for eliminating a rule that would allow these very firms to be acquired by existing competitors.³⁹

III. CONCLUSION

The 45 MHz spectrum cap continues to promote new investment, diverse services and the roll out of new competition in the mobile two-way voice communications market. As the Commission has only recently recognized and the subscriber data indicates, PCS licensees are still in the process of becoming full-fledged competitors to incumbent cellular operators. The

³⁹There is no question that barriers to entry in this market are high. Allocated spectrum is limited. If a new entrant or existing operator is acquired, there are no others waiting in the wings with available spectrum to enter if competition wanes. In addition, acquiring an existing carrier with a fairly developed network may also decrease the number of available antennae sites for a new entrant. While the number of independent site owners offering multi-tenant capacity is increasing, many of the more desirable hill-tops and roof-tops in urban areas are owned or leased on a long term basis by existing carriers. To the extent there is no single effective alternative to an existing carrier's site, a new carrier (presuming they somehow find spectrum) may be forced to erect multiple sites to achieve the same coverage. Thus, they would be at a cost disadvantage to the incumbent carrier.

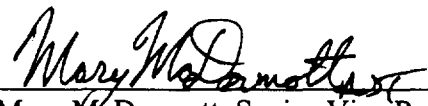
Charles Jackson's analysis for BAM argues if a significant amount of CMRS spectrum is consolidated, more CMRS spectrum would be quickly forthcoming. See, "CMRS Capacity: Expanded Use and Expanded Spectrum", Declaration of Dr. Charles L. Jackson, filed with the Comments of BAM. However, the particular spectrum bands discussed by Jackson are already being used by existing licensees that will not quickly or easily relinquish their rights. The time needed for rulemaking, spectrum allocation, and network construction could delay the entry of new competitors by five to ten years. This also presumes that CMRS licensees can make an effective case for additional spectrum over the needs of private mobile system operators, such as public safety entities, or those seeking spectrum for fixed services.

Finally, a number of comments noted that the spectrum cap could prevent CMRS carriers from implementing new services, in particular fixed access service for ILEC competition. There are a number of spectrum allocations available to CMRS carriers (LMDS, DEMS, 38 GHz and MMDS) suitable for fixed access purposes. Given how many larger CMRS carriers are also ILECs (including Bell Atlantic, GTE and SBC) it is doubtful that it is a shortage of spectrum that has kept them from instituting extensive wireless competitive local access.

Commission should not change or modify the very market structure that makes this evolution to robust two-way voice competition possible. Clearly, the spectrum cap may impact the current courting between wireless companies. These private business desires to consolidate broadband voice markets should not, however, serve as a reason to short circuit Commission efforts to create new, independent and viable PCS networks.

Respectfully submitted,

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ATTACHMENT A



MARKET DATA REPORT

for
PCIA

Revised 1-1-99

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**About
Telecompetition
Inc.**

Founded in 1996, Telecompetition, Inc. is committed to software and process development to produce reliable, trackable industry market data of metropolitan areas and finer granularity across a wide range of products.

**About the
ATIVA Research
Tools**

We achieve this with our flagship system called ATIVA Research Tools™ (patent pending). These tools perform sophisticated computations on both demand and supply side external industry data to produce historic and forecasted revenues and other market siz

ATIVA Research Tools™ uses sophisticated algorithms to calculate product revenues to smaller geographic areas. Factors considered in the calculations include demographics, relative use by household income, age, and current market drivers.

With ATIVA Research Tools™, Telecompetition applies the rigor of database technology with the expertise of market analysts to provide reliable, consistent market information at the state, county or metropolitan level.

PCIA Subscriber Estimates

		Wireless: Voice: Basic Service PCS	Wireless: SMR/ESMR	Wireless: Voice: Basic Service Cellular	PCS + SMR + Cellular	% PCS of Total
MSA / CMSA		subs (M)	subs (M)	subs (M)	subs (M)	
71	Hartford, CT	0.0000	0.017	0.267	0.284	0.0%
67	Grand Rapids-Muskegon-Holland, MI	0.0000	0.020	0.243	0.263	0.0%
70	Harrisburg-Lebanon-Carlisle, PA	0.0000	0.010	0.148	0.158	0.0%
3	Allentown-Bethlehem-Easton, PA	0.0000	0.008	0.134	0.142	0.0%
174	Springfield, MA	0.0000	0.009	0.134	0.142	0.0%
200	Youngstown-Warren, OH	0.0000	0.009	0.131	0.140	0.0%
164	Sarasota-Bradenton, FL	0.0000	0.007	0.122	0.129	0.0%
179	Stockton-Lodi, CA	0.0000	0.008	0.118	0.127	0.0%
36	Colorado Springs, CO	0.0000	0.007	0.113	0.120	0.0%
94	Lancaster, PA	0.0000	0.008	0.111	0.119	0.0%
63	Fort Wayne, IN	0.0000	0.007	0.112	0.119	0.0%
42	Daytona Beach, FL	0.0000	0.014	0.097	0.112	0.0%
169	Shreveport-Bossier City, LA	0.0000	0.008	0.098	0.106	0.0%
85	Kalamazoo-Battle Creek, MI	0.0000	0.007	0.097	0.104	0.0%
93	Lakeland-Winter Haven, FL	0.0000	0.006	0.097	0.104	0.0%
112	Melbourne-Titusville-Palm Bay, FL	0.0000	0.005	0.096	0.102	0.0%
99	Lexington, KY	0.0000	0.006	0.095	0.101	0.0%
60	Fort Myers-Cape Coral, FL	0.0000	0.006	0.094	0.100	0.0%
199	York, PA	0.0000	0.006	0.089	0.095	0.0%
95	Lansing-East Lansing, MI	0.0000	0.006	0.087	0.092	0.0%
41	Davenport-Moline-Rock Island, IA-IL	0.0000	0.006	0.085	0.091	0.0%
152	Rockford, IL	0.0000	0.006	0.085	0.091	0.0%
144	Reading, PA	0.0000	0.006	0.084	0.090	0.0%
15	Beaumont-Port Arthur, TX	0.0000	0.006	0.080	0.085	0.0%
135	Pensacola, FL	0.0000	0.005	0.078	0.083	0.0%
156	Salinas, CA	0.0000	0.005	0.077	0.082	0.0%
155	Saginaw-Bay City-Midland, MI	0.0000	0.005	0.077	0.082	0.0%
175	Springfield, MO	0.0000	0.006	0.075	0.081	0.0%
162	Santa Barbara-St. Maria-Lompoc, CA	0.0000	0.004	0.077	0.081	0.0%
56	Evansville-Henderson, IN-KY	0.0000	0.005	0.075	0.080	0.0%
136	Peoria-Pekin, IL	0.0000	0.005	0.075	0.079	0.0%
39	Corpus Christi, TX	0.0000	0.005	0.073	0.078	0.0%
190	Utica-Rome, NY	0.0000	0.004	0.069	0.073	0.0%
61	Fort Pierce-Port St. Lucie, FL	0.0000	0.004	0.066	0.070	0.0%
18	Binghamton, NY	0.0000	0.004	0.066	0.070	0.0%
191	Visalia-Tulare-Porterville, CA	0.0000	0.004	0.064	0.068	0.0%
27	Charleston, WV	0.0000	0.004	0.062	0.067	0.0%
75	Huntington-Ashland, WV-KY-OH	0.0000	0.004	0.061	0.065	0.0%
149	Roanoke, VA	0.0000	0.004	0.060	0.064	0.0%
53	Elkhart-Goshen, IN	0.0000	0.005	0.059	0.064	0.0%
54	Erie, PA	0.0000	0.004	0.058	0.062	0.0%
124	New London-Norwich, CT	0.0000	0.004	0.057	0.060	0.0%
171	South Bend, IN	0.0000	0.004	0.057	0.060	0.0%
128	Ocala, FL	0.0000	0.004	0.054	0.058	0.0%
59	Fort Collins-Loveland, CO	0.0000	0.003	0.053	0.057	0.0%
13	Barnstable-Yarmouth, MA	0.0000	0.003	0.051	0.055	0.0%
129	Odessa-Midland, TX	0.0000	0.003	0.051	0.054	0.0%
142	Provo-Orem, UT	0.0000	0.003	0.050	0.053	0.0%
161	San Luis Obispo-Antascadro-Paso Rbles, CA	0.0000	0.003	0.050	0.052	0.0%
87	Killeen-Temple, TX	0.0000	0.003	0.050	0.052	0.0%
122	Naples, FL	0.0000	0.004	0.048	0.052	0.0%
105	Lubbock, TX	0.0000	0.003	0.048	0.052	0.0%
5	Amarillo, TX	0.0000	0.003	0.048	0.051	0.0%
106	Lynchburg, VA	0.0000	0.003	0.047	0.050	0.0%

PCIA Subscriber Estimates

		Wireless: Voice: Basic Service PCS	Wireless: SMR/ESMR	Wireless: Voice: Basic Service Cellular	PCS + SMR + Cellular	% PCS of Total
MSA / CMSA		subs (M)	subs (M)	subs (M)	subs (M)	
193	Waco, TX	0.0000	0.003	0.046	0.049	0.0%
198	Yakima, WA	0.0000	0.003	0.046	0.049	0.0%
102	Longview-Marshall, TX	0.0000	0.003	0.045	0.048	0.0%
173	Springfield, IL	0.0000	0.003	0.045	0.048	0.0%
83	Johnstown, PA	0.0000	0.002	0.042	0.045	0.0%
111	Medford-Ashland, OR	0.0000	0.003	0.041	0.044	0.0%
32	Chico-Paradise, CA	0.0000	0.002	0.041	0.043	0.0%
189	Tyler, TX	0.0000	0.003	0.040	0.042	0.0%
185	Topeka, KS	0.0000	0.003	0.040	0.042	0.0%
176	St. Cloud, MN	0.0000	0.003	0.038	0.041	0.0%
109	Mansfield, OH	0.0000	0.002	0.038	0.041	0.0%
26	Champaign-Urbana, IL	0.0000	0.003	0.038	0.040	0.0%
84	Joplin, MO	0.0000	0.003	0.036	0.039	0.0%
92	Lake Charles, LA	0.0000	0.002	0.036	0.038	0.0%
147	Richland-Kennewick-Pasco, WA	0.0000	0.002	0.036	0.038	0.0%
114	Merced, CA	0.0000	0.002	0.036	0.038	0.0%
134	Parkersburg-Marietta, WV-OH	0.0000	0.002	0.035	0.038	0.0%
100	Lima, OH	0.0000	0.002	0.035	0.038	0.0%
80	Jamestown, NY	0.0000	0.002	0.035	0.037	0.0%
16	Bellingham, WA	0.0000	0.002	0.035	0.037	0.0%
163	Santa Fe, NM	0.0000	0.002	0.035	0.037	0.0%
17	Benton Harbor, MI	0.0000	0.003	0.034	0.037	0.0%
73	Houma, LA	0.0000	0.002	0.034	0.037	0.0%
145	Redding, CA	0.0000	0.002	0.034	0.036	0.0%
170	Sioux City, IA-NE	0.0000	0.003	0.033	0.035	0.0%
62	Fort Walton Beach, FL	0.0000	0.002	0.033	0.035	0.0%
81	Janesville-Beloit, WI	0.0000	0.002	0.033	0.035	0.0%
90	Lafayette, IN	0.0000	0.002	0.033	0.035	0.0%
140	Pittsfield, MA	0.0000	0.002	0.032	0.034	0.0%
34	Clarksville-Hopkinsville, TN-KY	0.0000	0.002	0.032	0.034	0.0%
195	Wausau, WI	0.0000	0.002	0.031	0.033	0.0%
153	Rocky Mount, NC	0.0000	0.002	0.030	0.033	0.0%
51	Eau Claire, WI	0.0000	0.002	0.030	0.032	0.0%
29	Charlottesville, VA	0.0000	0.002	0.030	0.032	0.0%
183	Terre Haute, IN	0.0000	0.002	0.030	0.032	0.0%
66	Glens Falls, NY	0.0000	0.002	0.029	0.031	0.0%
150	Rochester, MN	0.0000	0.002	0.029	0.031	0.0%
44	Decatur, AL	0.0000	0.002	0.029	0.031	0.0%
96	Laredo, TX	0.0000	0.002	0.029	0.031	0.0%
89	La Crosse, WI-MN	0.0000	0.002	0.029	0.031	0.0%
4	Altoona, PA	0.0000	0.002	0.029	0.031	0.0%
120	Monroe, LA	0.0000	0.002	0.029	0.031	0.0%
78	Jackson, MI	0.0000	0.002	0.028	0.030	0.0%
45	Decatur, IL	0.0000	0.002	0.028	0.030	0.0%
178	Steubenville-Weirton, OH-WV	0.0000	0.002	0.028	0.030	0.0%
20	Bloomington-Normal, IL	0.0030	0.002	0.031	0.036	8.5%
192	W. Palm Bch-Boca Raton, FL	0.0243	0.013	0.234	0.272	8.9%
22	Brownsville-Harlingen-San Benito, TX	0.0050	0.003	0.046	0.054	9.2%
110	McAllen-Edinburg-Mission, TX	0.0074	0.004	0.068	0.080	9.2%
6	Appleton-Oshkosh-Neenah, WI	0.0114	0.008	0.096	0.115	9.9%
108	Madison, WI	0.0122	0.007	0.103	0.122	10.0%
12	Bakersfield, CA	0.0143	0.007	0.121	0.142	10.0%
64	Fresno, CA	0.0207	0.012	0.174	0.207	10.0%
123	Nashville, TN	0.0325	0.017	0.269	0.319	10.2%

PCIA Subscriber Estimates

		Wireless: Voice: Basic Service PCS	Wireless: SMR/ESMR	Wireless: Voice: Basic Service Cellular	PCS + SMR + Cellular	% PCS of Total
MSA / CMSA		subs (M)	subs (M)	subs (M)	subs (M)	
58	Florence, AL	0.0038	0.002	0.028	0.034	11.4%
49	Dothan, AL	0.0040	0.002	0.029	0.035	11.5%
118	Mobile, AL	0.0145	0.006	0.105	0.126	11.5%
188	Tuscaloosa, AL	0.0044	0.002	0.032	0.039	11.5%
121	Montgomery, AL	0.0092	0.004	0.066	0.080	11.6%
76	Huntsville, AL	0.0096	0.004	0.069	0.083	11.6%
98	Las Vegas, NV-AZ	0.0405	0.018	0.285	0.343	11.8%
168	Sheboygan, WI	0.0046	0.002	0.031	0.038	12.0%
68	Green Bay, WI	0.0091	0.005	0.061	0.075	12.1%
146	Reno, NV	0.0119	0.005	0.081	0.098	12.2%
127	NY-N. NJ-Long Island, NY-NJ-CT-PA	0.6595	0.298	4.438	5.395	12.2%
30	Chattanooga, TN-GA	0.0162	0.008	0.108	0.132	12.3%
166	Scranton-Wilkes-Barre-Hazleton, PA	0.0216	0.010	0.143	0.174	12.4%
133	Panama City, FL	0.0046	0.002	0.030	0.036	12.7%
69	Greensboro-Winston Salem-High Point, NC	0.0475	0.019	0.305	0.372	12.8%
186	Tucson, AZ	0.0243	0.009	0.155	0.189	12.9%
28	Charlotte-Gastonia-Rock Hill, NC-SC	0.0499	0.020	0.316	0.386	12.9%
119	Modesto, CA	0.0151	0.006	0.095	0.117	13.0%
154	Sacramento-Yolo, CA	0.0582	0.021	0.368	0.447	13.0%
159	San Diego, CA	0.0885	0.032	0.558	0.678	13.0%
65	Gainesville, FL	0.0063	0.003	0.039	0.048	13.1%
138	Phoenix-Mesa, AZ	0.1033	0.044	0.643	0.791	13.1%
181	Tallahassee, FL	0.0085	0.003	0.053	0.065	13.1%
160	San Francisco-Oakland-San Jose, CA	0.2553	0.098	1.581	1.934	13.2%
52	El Paso, TX	0.0205	0.008	0.125	0.154	13.3%
196	Wichita, KS	0.0198	0.008	0.120	0.147	13.5%
187	Tulsa, OK	0.0297	0.012	0.179	0.220	13.5%
7	Asheville, NC	0.0073	0.003	0.044	0.054	13.5%
11	Austin-San Marcos, TX	0.0404	0.016	0.241	0.297	13.6%
74	Houston-Galveston-Brazoria, TX	0.1630	0.066	0.967	1.195	13.6%
197	Wilmington, NC	0.0068	0.002	0.041	0.050	13.7%
57	Fayetteville, NC	0.0093	0.003	0.055	0.068	13.7%
72	Hickory-Morganton-Lenoir, NC	0.0149	0.007	0.087	0.109	13.7%
37	Columbus, GA-AL	0.0088	0.003	0.052	0.064	13.7%
126	Norfolk-Virginia Beach-Newprt News, VA-N	0.0545	0.019	0.323	0.396	13.8%
103	Los Angeles-Riverside-Orange County, CA	0.5163	0.195	3.032	3.743	13.8%
9	Atlanta, GA	0.1477	0.052	0.864	1.064	13.9%
148	Richmond-Petersburg, VA	0.0411	0.016	0.237	0.295	14.0%
143	Raleigh-Durham-Chapel Hill, NC	0.0387	0.014	0.225	0.277	14.0%
82	Johnson City-Kingsport-Bris., TN-VA	0.0179	0.007	0.102	0.127	14.1%
35	Cleveland-Akron, OH	0.1199	0.046	0.684	0.850	14.1%
21	Boston-Worcester-Lawrence, MA-NH-ME-CT	0.2540	0.102	1.440	1.796	14.1%
55	Eugene-Springfield, OR	0.0117	0.004	0.066	0.082	14.3%
107	Macon, GA	0.0113	0.004	0.063	0.079	14.3%
24	Canton-Massillon, OH	0.0154	0.005	0.087	0.108	14.3%
10	Augusta-Aiken, GA-SC	0.0102	0.003	0.058	0.071	14.3%
165	Savannah, GA	0.0107	0.004	0.060	0.074	14.4%
88	Knoxville, TN	0.0252	0.009	0.141	0.175	14.4%
8	Athens, GA	0.0053	0.002	0.029	0.036	14.5%
184	Toledo, OH	0.0265	0.010	0.145	0.182	14.5%
113	Memphis, TN-AR-MS	0.0389	0.014	0.214	0.268	14.5%
38	Columbus, OH	0.0613	0.022	0.337	0.420	14.6%
91	Lafayette, LA	0.0140	0.005	0.077	0.096	14.6%
14	Baton Rouge, LA	0.0220	0.008	0.120	0.149	14.7%

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		Wireless: Voice: Basic Service PCS	Wireless: SMR/ESMR	Wireless: Voice: Basic Service Cellular	PCS + SMR + Cellular	% PCS of Total
MSA / CMSA		subs (M)	subs (M)	subs (M)	subs (M)	
167	Seattle-Tacoma-Bremerton, WA	0.1405	0.046	0.765	0.951	14.8%
19	Birmingham, AL	0.0351	0.011	0.190	0.236	14.8%
43	Dayton-Springfield, OH	0.0401	0.005	0.223	0.268	15.0%
194	Washington-Baltimore, DC-MD-VA-WV	0.2820	0.090	1.495	1.866	15.1%
157	Salt Lake City-Ogden, UT	0.0508	0.018	0.263	0.333	15.3%
117	Minneapolis-St. Paul, MN-WI	0.1458	0.051	0.721	0.917	15.9%
50	Duluth-Superior, MN-WI	0.0106	0.004	0.052	0.066	15.9%
172	Spokane, WA	0.0181	0.006	0.089	0.113	16.0%
141	Portland-Salem, OR-WA	0.0952	0.030	0.469	0.594	16.0%
31	Chicago-Gary-Kenosha, IL-IN-WI	0.4208	0.143	2.031	2.594	16.2%
33	Cincinnati-Hamilton, OH-KY-IN	0.0910	0.029	0.440	0.560	16.3%
182	Tampa-St. Petersburg-Clearwater, FL	0.1041	0.030	0.505	0.639	16.3%
115	Miami-Fort Lauderdale, FL	0.1602	0.050	0.759	0.969	16.5%
46	Denver-Boulder-Greeley, CO	0.1230	0.039	0.582	0.744	16.5%
132	Orlando, FL	0.0742	0.024	0.350	0.448	16.5%
79	Jacksonville, FL	0.0506	0.017	0.237	0.304	16.6%
177	St. Louis, MO-IL	0.1272	0.038	0.593	0.759	16.8%
101	Lincoln, NE	0.0120	0.004	0.056	0.071	16.8%
137	Philadelphia-Wil-Atl Cty, PA-NJ-DE-MD	0.2554	0.072	1.180	1.508	16.9%
158	San Antonio, TX	0.0659	0.019	0.301	0.386	17.1%
131	Omaha, NE-IA	0.0366	0.012	0.166	0.214	17.1%
130	Oklahoma City, OK	0.0504	0.015	0.228	0.293	17.2%
40	Dallas-Fort Worth, TX	0.2498	0.075	1.113	1.438	17.4%
97	Las Cruces, NM	0.0066	0.002	0.029	0.037	17.5%
2	Albuquerque, NM	0.0355	0.010	0.153	0.199	17.9%
116	Milwaukee-Racine, WI	0.0957	0.029	0.407	0.531	18.0%
48	Detroit-Ann Arbor-Flint, MI	0.2947	0.073	1.251	1.619	18.2%
23	Buffalo-Niagara Falls, NY	0.0716	0.019	0.291	0.382	18.8%
180	Syracuse, NY	0.0460	0.012	0.185	0.243	18.9%
1	Albany-Schenectady-Troy, NY	0.0571	0.015	0.229	0.301	19.0%
151	Rochester, NY	0.0664	0.017	0.265	0.349	19.0%
25	Cedar Rapids, IA	0.0118	0.003	0.045	0.060	19.5%
86	Kansas City, MO-KS	0.1141	0.030	0.425	0.569	20.1%
125	New Orleans, LA	0.0809	0.018	0.277	0.376	21.5%
139	Pittsburgh, PA	0.1498	0.030	0.497	0.677	22.1%
104	Louisville, KY-IN	0.0717	0.015	0.232	0.319	22.5%
77	Indianapolis, IN	0.1149	0.022	0.347	0.484	23.7%
47	Des Moines, IA	0.0355	0.007	0.102	0.145	24.5%

Key Assumptions

Sources Consulted: Solomon Smith Barney "Mobile Metrics" Spring 1998, DLJ "Wireless Communications" 11-98, FCC WTB Database 1-5-99 update to PCS Buildout Schedule, ATIVA Research Tools, Equifax, 1998 Multimedia Telecommunications Market Review (MMTA), RC

ATTACHMENT B

COMPARISON OF SUBSCRIBER LEVELS IN LARGEST CELLULAR MSAS*

	Cellular MSA	Estimated Cellular Subscribers (mill.)	Cellular Subs. As A % Of Total Market Cellular/PCS Subs.	Estimated PCS Subscribers (mill.)
1	Los Angeles	2.5	84%	0.4
2	New York	1.9	84%	0.3
3	Chicago	1.8	83%	0.3
4	Miami	1.4	93%	0.1
5	Wash/Balt.	1.3	77%	0.3
6	San Francisco	1.2	83%	0.2
7	Detroit	1.1	93%	0.08
8	Philadelphia	1.1	93%	0.08
9	Boston	1.1	94%	0.07
10	Atlanta	1.0	90%	0.1
11	Dallas	0.9	78%	0.2
12	Houston	0.9	89%	0.1
13	Seattle	0.7	91%	0.06
14	San Diego	0.6	85%	0.09**
15	Phoenix	0.6	93%	0.04
16	Tampa	0.6	90%	0.06
17	Minneapolis	0.6	92%	0.05
18	Denver	0.6	87%	0.08
19	St. Louis	0.5	92%	0.04
20	Sacramento	0.5	90%	0.05**

* - All Subscriber Estimates from RCR Magazine 1998 Top 20 List, December 28, 1998
All Estimates Rounded

** - Does not appear in RCR ranking of Top 40 PCS markets. Estimate taken from
Telecompetition estimates

ATTACHMENT C

QUALIFICATIONS OF HAI, INC. ASSOCIATES
ALAN J. BOYER AND DANIEL KELLEY

1. We have been asked by the Personal Communications Industry Association ("PCIA") to address arguments raised in the comments in WT Docket No. 98-205.

I. QUALIFICATIONS

2. Alan J. Boyer is a Senior Consultant at HAI Consulting, Inc. ("HAI"), of Boulder Colorado. He received a Bachelor of Arts degree in Business Administration from San Francisco State University in 1978 and attended the graduate telecommunications program at the University of Colorado. His professional experience includes ten years with Fidelity Investments in Boston, spent principally with their wireless communications subsidiary Advanced MobileComm, Inc. (AMI). While with AMI he oversaw regulatory affairs, directing their participation in a number of Commission proceedings including the development of PCS rules. Since joining HAI, he has performed critical analysis and cost modeling for a number of different wireless segments, including PCS, AMPs, SMR and LMDS. His resume is attached.

3. Daniel Kelley is Senior Vice President of HAI Consulting, Inc. He received a Bachelor of Arts degree in Economics from the University of Colorado in 1969, a Master of Arts degree in Economics from the University of Oregon in 1971 and a Ph.D. in Economics from the University of Oregon in 1976. His professional experience began in 1972 at the Antitrust Division of the U.S. Department of Justice where he analyzed mergers, acquisitions and business practices in a number of industries, including telecommunications. While at the Department of Justice, he was a member of the U.S. v. AT&T economics staff. In 1979, he moved to the Federal Communications Commission ("FCC") where he held positions as Senior Economist in the Common Carrier Bureau

and the Office of Plans and Policy, and also served as Special Assistant to the Chairman. After leaving the FCC, he was a Project Manager and Senior Economist at ICF, Incorporated, a public policy consulting firm. From September 1984 through July of 1990, he was employed by MCI Communications Corporation as its Director of Regulatory Policy. He has conducted economic and policy studies on a wide variety of telecommunications issues, including local exchange competition, dominant firm regulation, cellular radio competition and the cost of local service. He has filed papers or Declarations in the Commission's PCS auction proceeding, and in the PCS licensing proceeding. He has advised foreign government officials on telecommunications policy matters and has taught seminars in regulatory economics in a number of countries.

4. He has testified on telecommunications issues before this Commission, the California, Colorado, Connecticut, Florida, Georgia, Hawaii, Maryland, Massachusetts, Michigan, New York, Oregon, Pennsylvania and Utah Commissions, as well as the Federal-State Joint Board investigating universal service reform. His resume is attached

STATEMENT OF QUALIFICATIONS

Daniel Kelley

PROFESSIONAL EXPERIENCE:

Senior Vice President, HAI Consulting, Inc., Boulder Colorado (current position).

Conducting economic and applied policy analysis of domestic and international telecommunications public policy and business issues. Recent projects have included advising Central and Eastern European Governments on privatization and competition matters, assisting a private client with entry into the long distance market in Mexico, analyzing competitive conditions in cellular radio markets, analyzing the economics of cable television regulation, analyzing the prospects for local competition and measuring the economic cost of local service.

Director of Regulatory Policy, MCI Communications Corporation, 1984-1990.

Responsible for developing and implementing MCI's public policy positions on issues such as dominant carrier regulation, Open Network Architecture, accounting separations and Bell Operating Company line of business restrictions. Also managed an interdisciplinary group of economists, engineers and lawyers engaged in analyzing AT&T and local telephone company tariffs.

Senior Economist and Project Manager, ICF Incorporated, 1982-1984.

Telecommunications and antitrust projects included: forecasting long distance telephone rates; analysis of the competitive effects of AT&T's long distance rate structures; a study of optimal firm size for cellular radio markets; analysis of the FCC's Financial Interest and Syndication Rules, and competitive analysis of mergers and acquisitions in a variety of industries.

Senior Economist, Federal Communications Commission, 1979-1982.

Served as Special Assistant to the Chairman during 1980-1981. Advised the Chairman on proposed regulatory changes in the broadcasting, cable television and telephone industries; analyzed legislation and drafted Congressional testimony. Coordinated Bureau and Office efforts on major common carrier matters such as the Second Computer Inquiry and the Competitive Carrier Rulemaking. Also held Senior Economist positions in the Office of Plans and Policy and the Common Carrier Bureau.

Staff Economist, U.S. Department of Justice, 1972-1979.

Analyzed proposals for restructuring the Bell System as a member of the economic staff of U.S. v. AT&T; investigated the competitive effects of mergers and business practices in a wide variety of industries.

EDUCATION:

1976	Ph.D. in Economics	University of Oregon
1971	M.A. in Economics	University of Oregon
1969	B.A. in Economics	University of Colorado

PUBLICATIONS AND COMPLETED RESEARCH:

"Cable and Wireless Alternatives to Residential Local Exchange Service," Berkeley Conference on Convergence and Digital Technology (1997), with Alan J. Boyer and David M. Nugent.

"A General Approach to Local Exchange Carrier Pricing and Interconnection Issues," Telecommunications Policy Research Conference, (1992), with Robert A. Mercer.

"Gigabit Networks: Is Access a Problem?" IEEE Gigabit Networking Workshop (1992).

"Advances in Network Technology" in Barry Cole, ed., After the Break-Up: Assessing the New Post-AT&T Divestiture Era (1991).

"Alternatives to Rate of Return Regulation: Deregulation or Reform?" in Alternatives to Rate Base Regulation in the Telecommunications Industry, NARUC (1988).

"AT&T Optional Calling Plans: Promotional or Predatory" in Harry M. Trebing, ed., Impact of Deregulation and Market Forces on Public Utilities: The Future Role of Regulation (1985).

"The Economics of Copyright Controversies in Communications" in Vincent Mosco, ed., Policy Research in Telecommunications (1984).

"Deregulation After Divestiture: The Effect of the AT&T Settlement on Competition," FCC, OPP Working Paper No. 8 (1982).

"The Transition to Structural Telecommunications Regulation," in Harry M. Trebing, ed., New Challenges for the 1980's (1982), with Charles D. Ferris.

"Social Objectives and Competition in Common Carrier Communications: Incompatible or Inseparable?" in Harry M. Trebing ed., Communications and Energy in Transition (1981), with Nina W. Cornell and Peter R. Greenhalgh.

"An Empirical Survey of Price Fixing Conspiracies," Journal of Law and Economics (1974), with George A. Hay. Reprinted in Siegfried and Calvari, ed., Economic Analysis and Antitrust Law (1978) and the Journal of Reprints for Antitrust Law and Economics (1980).

TESTIMONY:

Federal Communications Commission, Application of Cellular Communications of Cincinnati, July 25, 1983 (with Robert J. Reynolds): Optimum firm size in the cellular radio market

Maryland Public Service Commission, Case No. 0450-Phase II, May 31, 1983: Access charge implementation issues

New York Public Service Commission, Case No. 28425, June 1983: Access charge implementation issues

Florida Public Service Commission, Docket No. 820537-TP, June 30, 1983, November 4, 1983, April 9, 1984, June 4, 1984, September 7, 1984, October 25, 1984 and August 15, 1985: Access charge implementation issues

Pennsylvania Public Utility Commission, Docket No. R-832, August 5, 1983: Pennsylvania Bell Rate Case

New Jersey Board of Public Utilities, Docket No. 83-11, February 20, 1984: Access charge implementation issues

New York Public Service Commission, Case 88-C-102, March 2, 1990: Alternative Operator Service Issues

California Public Service Commission, A.90-07-015, July 10, 1990: AT&T Deregulation

New York Public Service Commission, Case 28425, October 8, 1990: IntraLATA Dial 1 Competition

Massachusetts Department of Public Utilities, DPU 90-133, October 17, 1990: AT&T Deregulation

Georgia Public Service Commission, 3905-U, November 16, 1990: Incentive Regulation

California Public Service Commission, I-87-11-033, September 23, 1991: IntraLATA Competition

Georgia Public Service Commission, Docket No. 3987-U, January 31, 1992: Cross-Subsidy

Colorado Public Utilities Commission, Docket No. 92R-050T, August 24, 1992: Collocation

Connecticut Department of Public Utility Control, Docket No. 9106-10-06, September 25, 1992: Infrastructure

Maryland Public Service Commission, Case No. 8584, Phase II, July 21, 1995: Local Competition.

Connecticut Department of Public Utility Control, Docket No. 95-06-17, September 8, 1995: Local Competition .

Federal-State Joint Board on Universal Service, CC Docket No. 96-45, June 5, 1996: Cost Modeling.

Colorado Public Utilities Commission, Docket No. 96A-287T, September 6, 1996: Arbitration.

Oregon Public Service Commission, Dockets ARB 3 & 6, October 14, 1996: Arbitration.

Hawaii Public Utilities Commission, October 17, 1996: Arbitration.

Michigan Public Service Commission, October 24, 1996: Arbitration.

New York Public Service Commission, Case No. 28425, May 9, 1997: Access charges.

Colorado Public Utilities Commission, Docket No. 97F-175T, July 18, 1997: Access Charges.

Utah Public Service Commission, Docket No. 97-049-08, October 2, 1997: Access charges.

Connecticut Department of Public Utility Control, Docket No. 96-04-07, February 10, 1998; Access Charges.

ALAN J. (JOE) BOYER

HAI Consulting, Inc.

Senior Consultant

March 1996 – Present

Integrating industry, regulatory and technical experience, analysis and recommendations have been provided to a variety of telecommunications industry participants. Clients have included AT&T, MCI, CableLabs and PBS. Specializing in wireless topics, projects have included business and economic modeling, business plan creation, FCC spectrum auction management, and due diligence for acquisitions and financial offerings.

Fidelity Capital Telecommunications and Technology Group,

Advanced MobileComm, Inc.

Boston, MA

Director, Spectrum and Technology Planning

June 1991 – March 1996

Director of Research

January 1987 - June 1991

Senior member of the management team within the Telecommunications and Technology Group of Fidelity Capital, a wholly owned subsidiary of Fidelity Investments. Responsible for a range of regulatory, business development, and strategic planning functions focusing on developing wireless and wireline business opportunities. During the period covered, was actively involved in cellular, PCS and SMR projects.

Fidelity Systems Company,

Boston, MA

Senior Communications Analyst

January 1986 - January 1987

Principal analyst in Fidelity's Voice Engineering Group during a major expansion of telecommunication systems supporting Fidelity Investment's financial services business.

General Telephone of California,

Long Beach, CA

Various Positions

June 1978 - August 1984

Performed various supervisory and craft roles in Special Services and Operator Services.

EDUCATION

California State University, San Francisco

BA, with Honors, in Business Administration granted 1978. Emphasis in International Finance

University of Colorado, Boulder

Course work completed for MS in Telecommunications, 1984-85.

Papers and Lectures/Presentations

"Enduring Local Bottleneck II" (ELBII), 1997, with Daniel Kelley and David Nugent.

Spectrum Management in the United States, University of Colorado, Boulder CO, June 1998

Broadband Access, The New Frontier of Local Access Competition, Second Annual Telecommunications Law Conference, Austin TX, April 1998.

The FCC Auction Process, PCIA Part 90 Educational Session, Las Vegas NV, April 1998.

Local Exchange and Broadband Access Competition – Work in Progress, Texas Telecom Summit, Austin TX, December 1997.

PCS as a Wireless Alternative to Residential Local Exchanges Service, Telecommunications Policy Research Conference, Alexandria VA, September 1997.

Bytes in Flight – Broadband Wireless Services, Boulder Chamber of Commerce Technology Brown Bag, Boulder CO, August 1997.

Wireless Local Loop In the United States, Frost and Sullivan Fourth Annual Outlook For the Mobile Communications Industry, Dallas TX, January 1997.

PCS Technology and Market Overview, Association of Colorado Telecommunications Professionals, Denver CO, December 1996.